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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,781	02/13/2002	Jiaying Li	GEMS8081.117	9495

27061 7590 04/09/2003

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EXAMINER

SONG, HOON K

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 04/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/683,781

Applicant(s)

LI ET AL.

Examiner

Hoon K Song

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Drawings

Figure 1, 2 and 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

Figure 1, 2 and 3 should be described as prior art.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Blake et al. (US 6275560B1).

Regarding claims 1, 15, Blake teaches a method of voltage modulation for computed tomography (CT) imaging comprising the steps of (figure 3):

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acquiring a set of cardiac signals (EKG) having a plurality triggering pulses (figure 3);

determining a period of delay (SYSTOLE) after each triggering pulse (R);

after each period of delay, energizing a high frequency electromagnetic energy source to a first voltage (X-ray on);

acquiring a set of imaging data of a scan subject (abstract); and

after acquiring the set of imaging data, energizing the high frequency electromagnetic energy source to a second voltage (x-ray off) until the period of delay after a next triggering pulse (figure 3).

Regarding claims 2 and 17, Blake teaches that the second voltage is less than the first voltage (figure 3).

Regarding claims 3 and 18, Blake teaches that the second voltage is zero (x-ray off).

Regarding claim 4, Blake teaches that the step of (figure 3):

determining a primary (DIASTOLE) and a secondary imaging stage (SYSTOLE) from the set of cardiac signals;

energizing the high frequency electromagnetic energy projection source to the first voltage during the primary imaging stage (X-ray on); and

energizing the high frequency electromagnetic energy projection source to the second voltage during the secondary imaging stage (x-ray off).

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Regarding claim 5, Blake teaches that the step of filtering low energy high frequency electromagnetic energy projected to the scan subject to reduce high frequency electromagnetic energy exposure to the scan subject (column 4 line 45+).

Regarding claims 6, 16 and 19-21, Blake teaches that the step of determining a radiation dosage profile (on and off) from the set of cardiac signals (column 4 line 63+).

Regarding claim 7, Blake teaches a radiation emitting imaging system comprising:

- a high frequency electromagnetic energy projection source configured to project high frequency energy toward a scan subject;

- a detector assembly to receive high frequency electromagnetic energy attenuated by the scan subject and output a plurality of electrical signals indicative of the attenuation to a data acquisition system (32);

- a control configured to:

 - determine a plurality of primary data acquisition stages and a plurality of secondary data acquisition stages (EKG);

 - energize the high frequency electromagnetic energy projection source to a first voltage during each data acquisition stage to acquire primary imaging data (DIASTOLE);

 - energize the high frequency electromagnetic energy projection source to a second voltage during each secondary data acquisition stage (SYSTOLE); and

 - reconstruct an image of the scan subject from the imaging data acquired during each data acquisition stage (abstract).

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Regarding claim 8, Blake teaches a bowtie filter configured to filter a portion of the high frequency electromagnetic energy projected by the high frequency electromagnetic energy projection source to the scan subject (well known).

Regarding claim 9, Blake teaches that each data acquisition stage is followed by a secondary data acquisition stage (figure 3).

Regarding claim 10, Blake teaches that the control is further configured to drive the high frequency electromagnetic energy projection source to a zero voltage during each non-data acquisition stage (x-ray off).

Regarding claim 11, Blake teaches that the plurality of secondary data acquisition stages includes a plurality of non-data acquisition stages (x-ray off).

Regarding claim 12, Blake teaches a plurality of EKG sensors configured to acquire a set of EKG signals of a cardiac region of the scan subject (figure 3).

Regarding claim 13, Blake teaches that the control is further configured to determine a data acquisition stage and a secondary acquisition system from the set of EKG signals.

Regarding claim 14, Blake teaches that the control is further comprised to determine a number of subsets from the set of EKG signals and determine a triggering pulse within each subset and energize the high frequency electromagnetic energy projection source to the first voltage after a delay of the triggering pulse (figure 3).

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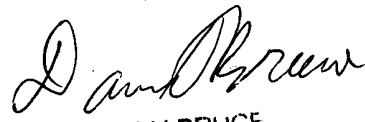
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoon K Song whose telephone number is 703-308-2736. The examiner can normally be reached on 8:30 AM - 5 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 703-305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-4858 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Hoon K. Song
March 24, 2003


DAVID V. BRUCE
PRIMARY EXAMINER